

QA:N/A

TABLE OF CONTENTS

Summary	1
1.0 INTRODUCTION AND BACKGROUND.....	3
1.1 Purpose	4
2.0 SOCIAL AND ECONOMIC CHARACTERISTICS	6
2.1 Population.....	6
2.2 Economic Activity.....	8
2.2.1 Labor Force and Unemployment	8
2.2.2 Taxable Sales and Assessed Value	11
2.2.3 Housing	12
2.2.4 Tourism/Visitation	13
2.3 Relationship of the Area's Economy to that of the Larger Region.....	15
3.0 PUBLIC INFRASTRUCTURE	18
3.1 Sewer and Water Community	18
3.2 Communications.....	18
3.3 Energy Distribution	18
3.4 Transportation.....	18
3.5 Health Care	19
3.6 Schools and Other Public Facilities.....	20
4.0 NATURAL RESOURCES.....	24
4.1 Land and Water Resources.....	24
4.1.1 Lands.....	24
4.2 Water Resources	30
4.2.1 Surface Water.....	30
4.2.2 Ground Water.....	33
4.2.3 Water Use	34

TABLE OF CONTENTS (CONTINUED)

List of Table

Table S-1	Summary of Economic and Demographic Conditions.....	2
Table 2-1	Mineral County Population Forecasts: 2003 to 2012	7
Table 2-2	Age of Population, Mineral County: 1990 - 2000	8
Table 2-3	Industrial Employment by Sector and Wages: 1998-2004	9
Table 2-4	Employment and Average Weekly Wages.....	10
Table 2-5	Mineral Labor Force and Unemployment: 1998-2005	11
Table 2-6	Major Employers 2004	11
Table 3-1	Public Facilities Mineral County: 2003	20
Table 4-1	Mineral County Hydro Basins: 2002.....	34
Table 4-2	Mineral County Water Usage	35
Table 4-3	Mineral County Water Usage Rates.....	36
Table 4-4	Mineral County Agricultural Water Use Analysis.....	37

List of Figures

Figure 2-1	Historic Population Growth Mineral County.....	7
Figure 2-2	Population and Employment Mineral County 1997 - 2004.....	9
Figure 2-3	Per Capita Income Mineral County and Nevada	10
Figure 2-4	Mineral County Taxable Sales & Assessed Values	12
Figure 2-5	Major Markets for Overnight Travelers to Mineral County	16
Figure 3-1	Location of Public Facilities.....	21
Figure 3-1A	Public Facilities in Hawthorne	22
Figure 3-1B	Public Facilities in Walker Lake	23
Figure 1-A	Major Land Use in Mineral County.....	25
Figure 2-A	Land Use in Hawthorne	26
Figure 3-A	Land Use in Walker Lake.....	27
Figure 4-A	Land Use in Mina	28



TABLE OF CONTENTS *(CONTINUED)*

Figure 5-A Land Use in Luning.....	29
Figure 4-1 Major Water Features, Mineral County	31
Figure 4-2 Mineral County and Hawthorne Projected Water Use	37
 Appendix A- Combined Statement of Revenues and Expenditures: 2001 - 2004 .	38



Summary of Economic and Demographic Changes

This report is being prepared as part of Mineral County's efforts to establish baseline conditions for the purposes of assessing potential impacts associated with the Yucca Mountain Project. The baseline report is updated annually in order to establish a thorough understanding of local socioeconomic and demographic conditions in Mineral County.

There have been few demographic changes in Mineral County over the last year. Population has remained relatively flat at approximately 4,673 persons countywide in 2004. Since 1990 Mineral County population has declined by nearly 2,000. These declines were attributed to reductions in civilian and military personnel at Hawthorne Army Ammunition Depot and a local downturn in Mining activity.

In the future, population growth could rebound significantly as several new businesses are in the process of moving to the Hawthorne area. These businesses include a waste disposal and recycling operation associated with the reuse of the Rawhide Mine, a new defense and security contractor, and Skyview Academy, a private youth correction facility. These new business operations could provide more than 300 new jobs in the local economy with the potential to expand. Additionally, numerous part-time job opportunities associated with the defense and security contractor will be created as well as increased short-term visitor activity. The total population associated with the increase in employment could be as high as 790 people. Unlike the mineral industry, the aforementioned new employment opportunities will not be as cyclical in nature as mining. Therefore, Mineral County is likely to benefit from more permanent housing developments and the willingness of local businesses to invest long-term to increase the level of goods and services offered locally. Most of the 300 new jobs are expected to be created in 2005 and 2006.

Employment in the County has stabilized around 1,700 jobs in 2004. The unemployment rate has declined to about 6.4 percent. Since 1998, Mineral County has lost nearly 700 jobs. With the limited economic base in the County, recent job losses translated directly into population declines in the County. Unemployed workers leave the area in search of employment opportunities elsewhere. As of the third quarter of 2004, the Mineral County unemployment rate declined to 5.8 percent about 2 percentage points higher than the state unemployment rate of 3.9 percent.

After several years of limited mineral industry activities, a number of new mining projects are slated for Mineral County in 2005 and 2006. The total workforce associated with this activity is currently unknown, but could add substantially to the local employment base.

One potential bright spot for Mineral County has been the increase in taxable sales. For the year ended June 30, 2005, taxable sales for Mineral County increased by nearly \$6,000,000 over the same 12 month period ending June 30, 2004.

Along with the previous job losses in Mineral County, the local housing market had suffered as well. During 2003 and the early part of 2004, a number of foreclosure and tax sales of single-family properties occurred in Mineral County. Based upon Mineral County Assessor data, the average single-family sales price was about \$60,000. The median price was approximately \$53,000, and the highest sales price for a single family residential unit in the last 18 months was \$169,000. More recently, housing prices have increased at the upper end with the most expensive home selling for \$190,000. Both the average and median price of a single family detached home increased slightly year over year. With increasing local employment, the demand for housing should increase along with the price.

This year's baseline report identified very few changes in other resources in Mineral County. There has been little or no change to traffic counts, health care and public facilities, and natural resources. If new businesses become fully established during the next year, most population gains will probably be made in the Hawthorne area. Such increases will probably lead to greater increases in municipal water demand, traffic counts, and sales and room tax. However, as new employment and job increases take place, more significant changes should occur.

A summary of economic and demographic conditions are shown in Table S-1.

Table S-1 Summary of Economic and Demographic Conditions Mineral County: 2000, 2003 and 2004			
	2000	2003	2004
Population	5,071	4,687	4,673
Employment	1,840	1,740	1,780
Unemployment Rate	10.1%	6.4%	6.2%
Per Capita Income	\$24,306	*\$23,495	*\$24,254
Taxable Sales	\$40,740,499	\$30,867,093	\$36,424,537
Assessed Value	\$94,364,550	\$73,108,979	\$73,359,340
Median S.F. Home	\$59,500	\$53,000	\$55,000

* 2002 and 2003 per capita income, respectively, + 2000 Census


1.0 INTRODUCTION AND BACKGROUND

Mineral County, Nevada, was created out of the northern portion of Esmeralda County on February 10, 1911. Nevada's earliest maps show the presence of Walker Lake, a prominent feature of Mineral County and a noted landmark to early explorers. Jedediah Smith, first non-native explorer into Nevada, passed near Walker Lake in 1827 during his remarkable trip from west to east across the state. Peter Skene Ogden, another noted earlier explorer of the region now known as The Great Basin, was here in 1829, then Fremont in 1845 with his guides Kit Carson and Joseph Walker, for whom the lake was named.

The town site of Hawthorne was selected in 1880 by H.M. Yerington, president of the Carson and Colorado Railroad Company as a division and distribution point for the new railroad. Yerington named the new town Hawthorne after a lumberman friend in Carson City. On April 14, 1881, the first train arrived at the town's site, loaded with prospective buyers for the new town. Hawthorne's location, at the southern end of Walker Lake, was adjacent to the important Knapp's Station and Ferry Landing on the busy Esmeralda toll road from Wadsworth to Candelaria. Radiating roads ran to all of the surrounding mining areas, adding importance to this area and its development as distribution point. In its early years the county had many well known mining towns such as Aurora, Belleville, Candelaria, Rawhide and others congregated to exchange merchandise and news. In 1883, Hawthorne took the Esmeralda county seat from declining Aurora, but later lost it to booming Goldfield. In 1911, Hawthorne again became a county seat, this time for the newly formed Mineral County.

In 1926, a destructive munitions explosion in the east caused the United States military to explore alternative, relatively remote sites for the storage of explosives. In 1930, the U.S. Navy selected the Hawthorne-Whiskey Flat portion of the lower Walker Lake Valley as the site for its ammunition depot. The storage facilities grew over the years and became the Navy's largest such munitions facility. The town of Babbitt was subsequently built on the northern edge of the facility to house military personnel. The town of Hawthorne underwent significant growth due to this facility. The County's total population expanded from 1,863 persons in 1930 to 5,560 by 1950





and eventually peaked at 7,051 persons by 1970. During the 1980's and 1990's the depot's activities declined.

Presently, Hawthorne is a central point for desert travelers and for the vacation, sporting, and recreational activities on nearby Walker Lake. Walker lake, along with Pyramid Lake located in Washoe County to the north, represents one of two remaining lake remnants of Ice Age Lake Lahontan, which some 12,500 years ago covered approximately 8,600 square miles and a large portion of northwestern Nevada. Due to upstream irrigation diversions and drought, Walker Lake's surface elevation and volume have declined significantly since the early 1900's, increasing the salinity of the lake's waters and jeopardizing its fishery.


Mineral County is also home to the Walker River Paiute Indian Reservation, which occupies over 200,000 acres and is located in the northwestern portion of Mineral County, spilling over to the north into Churchill County and to the west into Lyon County. Although the area around Walker Lake in the Utah Territory was set-aside for "Indian Purposes" in 1859, it was not until 15 years later that President Grant signed the executive order formally establishing the Walker River Indian Reservation on March 19, 1874. In 1906, after many years of pressure from state and federal government officials, and particularly local mining interests, the Walker River Paiute Tribe ceded 268,000 acres of reservation land to the federal government, including all lands surrounding Walker Lake. It was first believed that the ceded lands contained extensive mineral deposits, although later exploration failed to find significant ore bodies. Later, on several occasions the federal government added to the reservation lands, first in 1918 (34,000 acres), then again in 1928 (69,000 acres), and finally in 1936 (171,200 acres), eventually increasing the reservation's total acreage to its current level of 232,902 acres.

Mineral County is located in the west-central portion of Nevada and borders the State of California on the southwest. Mineral County is the sixth smallest county in Nevada, covers approximately 4,019 square miles, (9,938 square kilometers) and accounts for approximately 3.5 percent of Nevada's total surface area of 110,540 square miles (285,298 square kilometers).

Of Mineral County's 2,572,160 acres of surface area, 2,091,422 acres, or just over 81.3 percent of the county's total area are controlled and managed by the federal government. Of these federally managed public lands, approximately 382,499 acres are managed by the U.S. Forest Service (USFS). The USFS managed lands include a portion of the Toiyabe National Forest, which covers much of the southernmost portion of Mineral County. Relative to Nevada's seventeen counties, Mineral County ranks as the eighth highest in terms of its percentage of federal land ownership and fifth lowest in terms of the actual area of federal ownership.

1.1 Purpose

This report provides a baseline description of existing conditions in Mineral County as of 2004. The report provides information on social, economic, public services and facilities,



and natural resources available in Mineral County and its communities. The report will be used to measure potential changes to Mineral County as a result of the high-level nuclear waste repository at Yucca Mountain and associated transportation activities. Additionally, material presented in the following chapters represents a compilation of previous investigations by Mineral County for Yucca Mountain oversight activities such as the Transportation Status Report and Impacts to Mineral County Visitors. The baseline report contains information about population, labor force, employment, wages, fiscal conditions, natural resources, and land uses. The Yucca Mountain draft and final environmental impact statement contained very little information about Mineral County. This report will help supplement the lack of information developed by DOE. The baseline report will be updated periodically as part of Mineral County's on-going efforts to assess potential impacts associated with the Yucca Mountain Project.



2.0 SOCIAL AND ECONOMIC CHARACTERISTICS

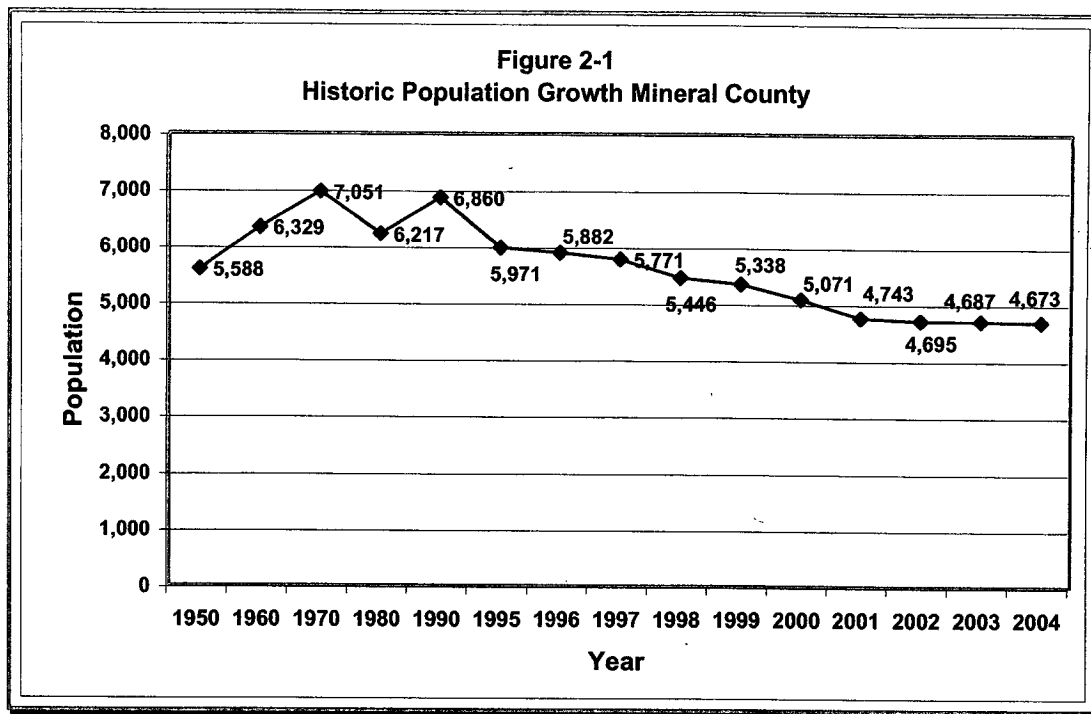
2.1 Population

The population of Mineral County has fluctuated significantly. Population swings can largely be attributed to mining and defense related activities. Historically, mining has played an important role in Mineral County along with the build-up of U.S. Army Ammunition Plant at Hawthorne. In recent years the area has experienced some population declines attributed to the downturn in precious metals mining that has resulted in the shutdown of many active sites throughout Mineral County and Nevada. Figure 2-1 shows current and historic population patterns for Mineral County. Since the late 1990s, the population has declined. This current reduction can again be attributed to a reduction in personnel at the Army's ammunition depot and a slowdown of mining operations. The only increase in population during the last decade occurred in Schurz where total population increased from 617 in 1990 to 721 in 2000.

Population levels in Mineral County will stabilize as long as further reductions in personnel at the Depot do not occur. In coming years, the population will probably begin to rise based on several factors. Recent efforts to attract new industry and jobs to the area have been moderately successful. Small increases in the employment base will continue to occur. Areas adjacent to Mineral County continue to develop. Churchill County to the north and Lyon County to the north and west continue to experience significant population and employment gains. Even areas to the west of Mineral County in California are showing increases in population. As the population of the region grows more people will visit the area for recreation and other purposes. Employment centers will move closer to Mineral County providing job opportunities for residents who choose to commute. Also, U.S. 95 will play an increasing role in interstate highway transportation and goods movement. Traffic use statistics provided by the Nevada Department of Transportation confirms this trend (See Section 3.4)

The aforementioned conditions will probably result in relatively modest gains in population growth over the next several years. Table 2-1 provides population forecasts for Mineral County through 2012. The forecast calls for growth at or below 1 percent per year and a total population increase of about 500 from 2002 to 2012. Future growth may occur with resurgence in mining, and other economic development activities. Recently, in the fall of 2004, two new major employers are moving to the area. As many as 300 new jobs may be created in the Hawthorne area.

Table 2-2 contains a comparison of population characteristics for Mineral County, the Town of Hawthorne, and Schurz. Most apparent in the population data is the general aging of the population. Mineral County has one of the highest percentages of people age 65 and older. Also, the median age in the County has climbed to 42.9 while the percentage of the population that is age 5 and under has declined from 8.8 percent in 1990 to 5.3 percent in 2000. Nearly 20 percent of the population in Mineral County was age 65 or older in 2000. In comparison the percentage of persons age 65 and older in the State of Nevada is 11 percent and the median age was 35 in 2000. Again trends in Mineral County are due to the loss of workers and their families.



Source: U.S. Census and Nevada State Demographer

Table 2-1
Mineral County Population Forecasts: 2003-2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mineral County (1)	4,734	4,673	4,695	4,950	5,299	5,746	5,934	5,994	6,054	6,114
Hawthorne	3,311	2,968	2,975	3,316	3,550	3,965	4,095	4,136	4,177	4,219
Walker Lake	410	318	350	386	426	469	517	570	628	692
Schrüz	721	725	728	732	736	739	743	747	750	754
Mina	380	318	316	315	313	312	310	309	307	306
Luning	106	97	97	97	96	96	96	96	96	95
Mineral County(2)	4734	4,673	4,695	4,687	4,673	4,720	4,767	4,815	4,863	4,911
Hawthorne	3311	2,968	2,998	3,028	3,058	3,089	3,119	3,151	3,182	3,214
Walker Lake	410	318	350	386	426	469	517	570	628	692
Schrüz	721	725	728	732	736	739	743	747	750	754
Mina	380	318	316	315	313	312	310	309	307	306
Lunning	106	97	97	97	96	96	96	96	96	95

(1) Mineral County forecasts with new employment, and (2) Nevada State Demographer.

Many older retirees particularly those formerly associated with the U.S. Department of Defense have remained in the community. As economic development occurs and new jobs become available in Mineral County, the percentage of persons age 65 and older will become lower.

Table 2-2 Age of Population, Mineral County	1990	2000
Mineral County Population	6,475	5,071
Percentage of Population 5 yrs or younger	8.8%	5.3%
Percent of Population age 65 yrs or Older	13.1%	19.8%
Median age	33.9 yrs	42.9%
Hawthorne Population	4,162	3,311
Percent of Population age 5 yrs or younger	8.6 yrs	5.0%
Percent of Population age 65 yrs or Older	13.8%	20.6%
Median Age	34.2	43.7
Schurz Population	617	721
Percent of Population age 5 yrs or younger	16.4%	8.7 %
Percent of Population age 5 yrs or younger	8.9%	11.9%
Median age	28.0 yrs	34.6 yrs

Source: 1990 and 2000 Census

2.2 Economic Activity

2.2.1 Labor Force and Unemployment

Economic activity in Mineral County and its communities has been fairly narrow. Population growth and declines have largely been influenced by changes in mining and Department of Defense activities. Traditionally, mining, trade, services and government provide the largest employment sectors (Table 2-3). The services and government sector are strongly influenced by activities at the Hawthorne Army Ammunition Depot. Since 1998 total industrial employment has declined from 2,260 to approximately 1,790. The labor force bottomed in 2002 and appears to have stabilized in 2002 and 2003. Figure 2-2 shows population growth and total employment in Mineral County. The primary reason unemployment rates tend to decline in Mineral County over time is that unemployed workers seek employment outside Mineral County or relocate after layoffs occur.

Wages in Mineral County are typically lower as compared to wages for industries throughout the State. On average, weekly wages in Mineral County as of the 1st quarter of 2002 were \$602 slightly lower than the State average of \$649 (Table 2-4). The differences in wages are also shown in a comparison of per-capita income. On average, annual per capita income in Mineral County is about \$4,000 lower than the average for the State of Nevada (Figure 2-3).

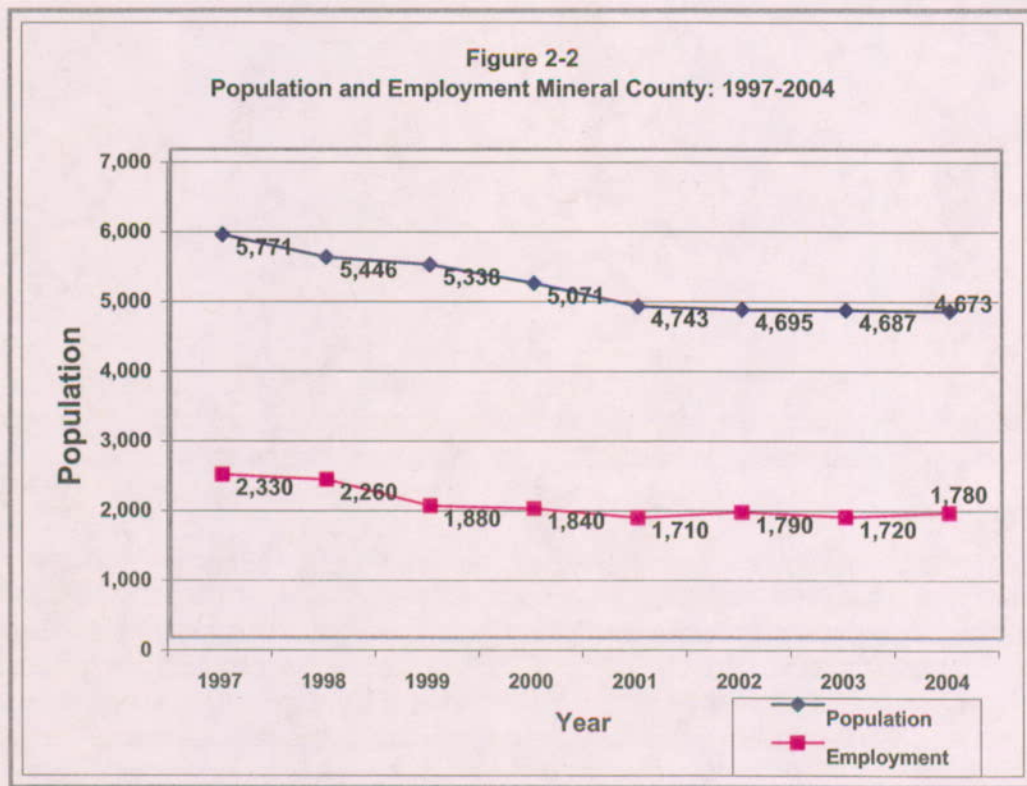
Unemployment rates in Mineral County have been relatively high peaking in 2000 at 10.1 percent and declining to 6.0 percent 2003 and further to 5.8 percent in 2004 (Table 2-5). The current rate is about 2.0 percent above the State's unemployment rate. Just over 120 people remain unemployed in Mineral County. Major employers

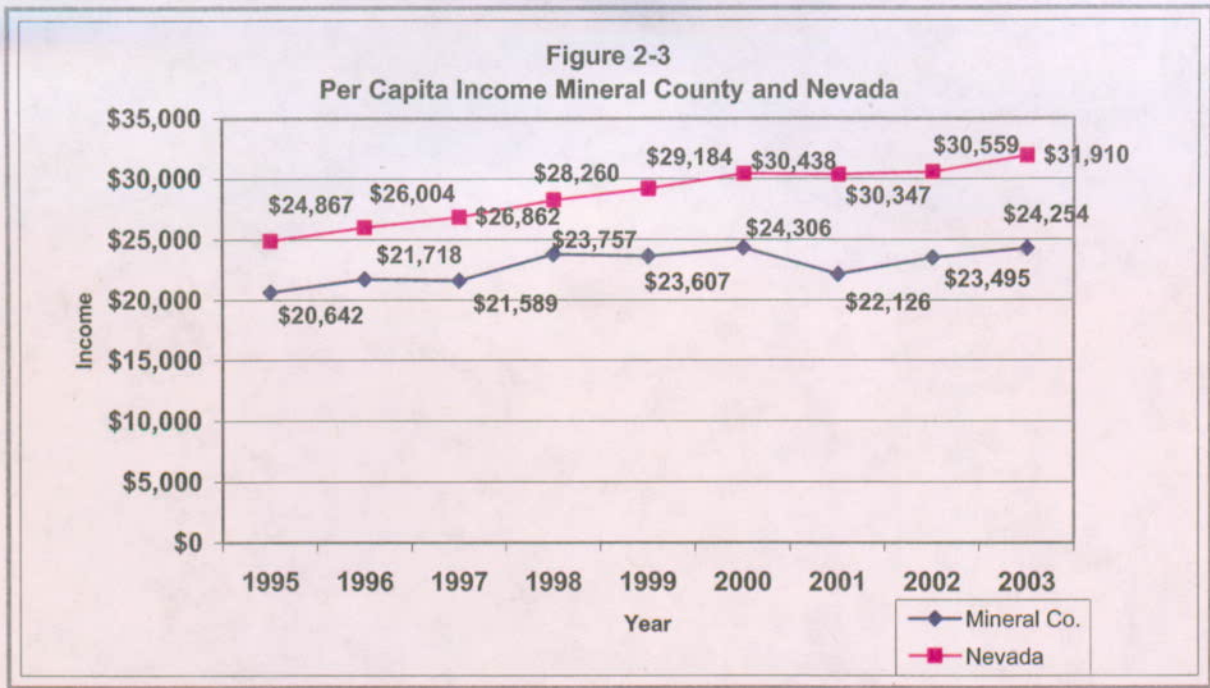
are shown in Table 2-6. The largest employer is Day Zimmerman contractor operator for the U.S. Department of Defense facility at Hawthorne.

Table 2-3 – Industrial Employment by Sector and Wages: 1998-2004

Sector	1998	1999	2000	2001	2002	2004
Total Employment	2,260	1,880	1,840	1,710	1,790	1,780
Services	1,070	940	780	670	670	670
Government	600	580	580	570	620	610
Mining	240	230	190	170	140	0
Whole/Retail Trade	230	220	220	210	220	220
Construction	40	*	40	20	20	30
Manufacturing	*	*	*	*	10	10
TCPU	20	20	20	10	20	20
Fire	40	40	40	40	40	40

Source: Nevada Department of Employment, Training and Rehabilitation.





Per capita income for Mineral County remains below the overall State level. From 1996 to 2003 only small gains were made Mineral County's per capita income.

Table 2-4 Employment and Wages: Mineral County: 2004

Industry	Mineral County			State of Nevada		
	Avg Emp	% of Total	Wages	Avg. Emp	% of Total	Wages
Total	1,735	100.0%	\$673	1,145,773	100.0%	\$713
Natural Resources/Mining	*		*	11,701	1.0%	\$1,084
Construction	28	1.6%	\$317	118,174	10.3%	\$816
Manufacturing	13	0.7%	\$402	45,932	4.0%	\$816
Trade, Transportation,	148	8.5%	\$479	204,140	17.8%	\$641
Information	*	*	*	14,883	1.3%	\$917
Financial Activities	50	2.9%	\$499	61,993	5.4%	\$888
Professional Services	*	*	*	133,609	11.7%	\$873
Education and Health Serv.	325	18.7%	\$647	79,868	7.0%	\$800
Leisure and Hospitality	240	13.8%	\$241	312,466	27.3%	\$509
Other Services	11	0.6%	\$344	25,383	2.2%	\$522
Government	252	14.5%	\$657	135,495	11.8%	\$972

**Table 2-5 Mineral County Labor Force and Unemployment: 1998-2005**

	2005	2003	2001	2000	1999	1998
Labor Force	2,028	1,830	1,830	2,060	1,980	2,420
Unemployment	125	120	160	210	170	170
Unemployment Rate	6.2%	6.4%	8.60%	10.10%	8.40%	6.80%
Total Employment	1,903	1,710	1,670	1,860	1,810	2,250

Source: Nevada Department of Employment, Training and Rehabilitation

Table 2-6 Major Employers: 2004

Company	Sector	Number of Employees
Day & Zimmerman	Service	400-499
Mineral County Schools	Government	100-199
Kennecott Rawhide	Mining	100-199
El Capitan	Service	100-199
Mineral County	Government	100-199
Mt. Grant Hospital	Government	50-99
Hawthorne Misc.	Service	20-49
Tribal Council	Government	20-49
Safeway Stores, Inc.	Trade	20-49
HCU	Finance	20-49

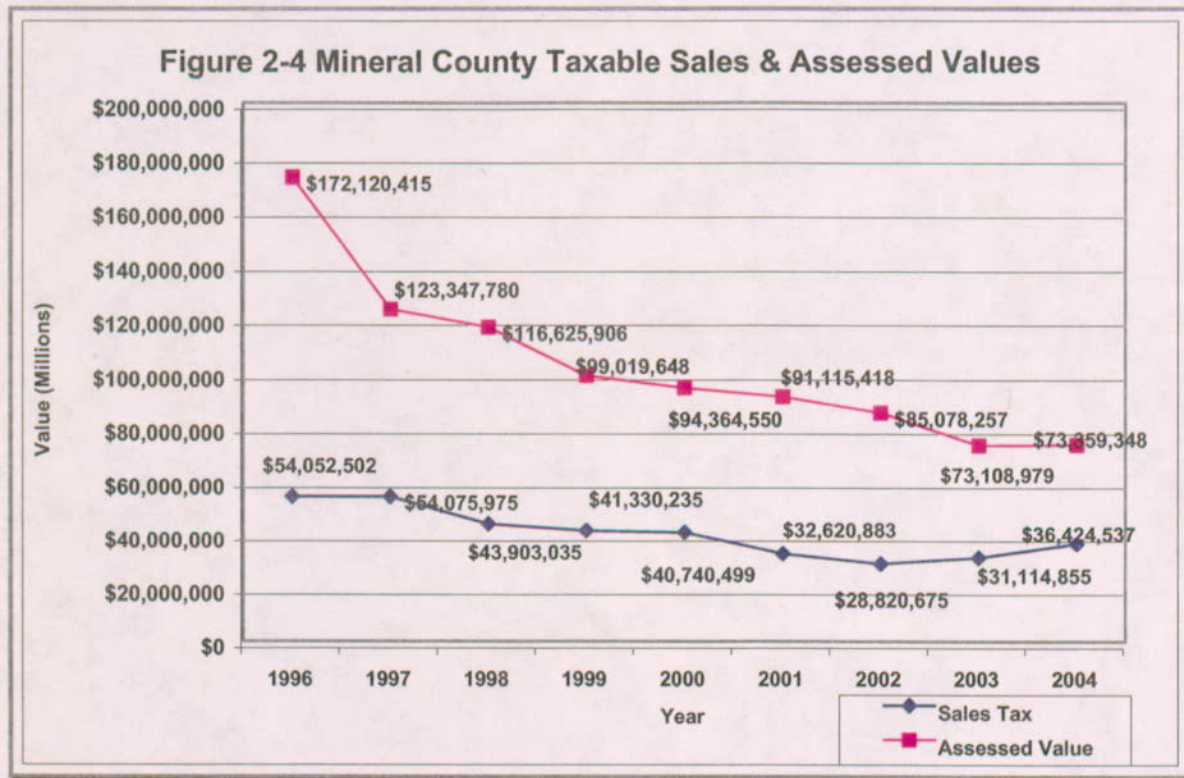
Source: Nevada Department of Employment Security, 2004

2.2.2 Taxable Sales and Assessed Value

In 1997 total assessed value in Mineral County was just over \$153 million. Since that time assessed value declined about 40 percent to \$91.8 million. In the year 2003 Taxable sales in Mineral County declined by nearly 50 percent since 1997. The drop in taxable sales and assessed value is shown in Figure 2-4. Declines have generally occurred across a range of business sectors. The most sizeable declines have occurred in the construction, chemical and allied products, wholesale trade, and automotive dealers and gasoline. It appears that the mining sector has had the greatest impact on taxable sales over that past several years. The decline in taxable sales has important fiscal ramifications for Mineral County and the ability to fund services. In addition to

the decline in taxable sales, total assessed value has also declined significantly but appears to have leveled off in 2003. In 2004, taxable sales increased by approximately \$6.0 million over 2003 levels.


Appendix A shows the general revenues and expenditures of Mineral County. Locally generated revenues have declined significantly in Mineral County. Property tax as a percentage of the total revenues has declined from just over 30 percent to about 25 percent of total revenues. At the same time cuts in government expenditures have continued as well.



Source: Nevada Department of Taxation, various years

2.2.3 Housing

Along with the previous job losses in Mineral County, the local housing market suffered as well. During 2003 and the early part of 2004, a number of foreclosure and tax sales of single family properties occurred in Mineral County. Based upon Mineral County Assessor data, the average single family sales price was about \$60,000 in 2004. The median price was approximately \$53,000, and the highest sales price for a single family residential unit in the last 18 months was \$169,000. Based upon the ratio of median sales prices of a single family home to the median family income, Mineral County remains very affordable in 2004. Since 2004 housing prices have improved in response to new employment growth and development in the Hawthorne area. The highest reported sales price in Mineral County was \$190,000 during 2004 and the first half of 2005. The median price also rose to about \$60,000.



In 2000 there were 2,167 housing units of which 1,780 were single-family detached housing units. Nearly all of the single family attached and multi-family housing is found in the Town of Hawthorne. Very few new homes have been constructed in Mineral County in recent years. The Mineral County Housing Authority operates an elderly housing complex.

Information on rental rates is very difficult to find because most rental units are comprised of single family homes, and mobile homes. The 2000 median gross rent was \$398 per month and the median value of specified owner occupied units was \$59,900 (2000 Census). Most rental rates in Mineral County range from a low of \$300 per month to \$750 per month.

The housing cost burden in Mineral County is largely concentrated among households that have incomes at or below 50 percent of the median income. Those households with the greatest cost burden in 2000 tend to be small renter households and owners.

The construction of new housing units will be required for new development in Mineral County. The availability of the current housing stock is very limited. Rental units and multi-family housing is very difficult to find. In the near-term housing prices should rise in response to increased demand and limited housing supply.

Overall housing affordability has improved in Mineral County from 1990 to 2004. The ratio of the median value of a single family home to the median household income was 1.09 in 2004. Improvement in local affordability is due to significant declines in mineral industry employees (Rawhide and Candelaria Mines).

The housing cost burden among both lower income renters and owners has generally decreased. Based upon 2004 median home sales price, households at or above 30 percent of the median income can still afford to purchase the median value of a home sold in Mineral County. Lower income households including those at the 30 percent of the median income can afford rental housing Mineral County, if it were available. However, new employment and associated housing demand will probably lead to price increases.

2.2.4 Tourism/Visitation

The total number of visitors is difficult to estimate, particularly outdoor recreation users to Mineral County. The primary recreational resource in the area is Walker Lake. The majority of out-of-area recreation users probably have Walker Lake as a destination although other forms of dispersed recreation such as hunting, camping, off-road vehicle use are readily available in Mineral County. Estimates of the type and volume of visitors to Mineral County include the following:

- **Hotel/Motel Overnight Visitors**

There are approximately 276 motel rooms in Hawthorne. Based upon discussions with local operators, the overall occupancy rate could be as high as 70 percent resulting in as many as 70,518 room nights per year. The occupancy rate is likely to fluctuate



depending upon general economic conditions. The average number of persons per room is assumed to be 2 based upon visitor registration information collected from local motels. The total number of estimated overnight motel visitor's in Mineral County is 141,036, annually. A portion of said visitors attend special events in the Hawthorne area each year. It is important to make this distinction because visitors who attend special events tend to spend more and stay longer as compared to overnight travelers passing through the area. Major markets for overnight travelers and likely high-level waste routes were discussed in Impacts to Mineral County Visitors and Waste Transportation to Yucca Mountain, August 2002.

RV Park Visitor

There are approximately 149 RV spaces in the Hawthorne area. Assuming average occupancy is similar to the hotel/motel rate, there could be approximately 38,069 RV space rentals per year. With an average of 2 persons per RV rental would result in 76,139 visitors per year. A new RV park opened in 2004 adjacent to U.S. Highway 95. The new park will likely increase the number of RV related visitors staying in the Hawthorne area.

RV park visitors are noticeably different from overnight hotel visitors in terms of their place of origin. RV park users from Nevada are a small percentage of the total (9.8 percent) as compared to overnight hotel visitors where Nevada accounts for about 42 percent of that market segment. There are a higher percentage of RV travelers from the Pacific Northwest including Canada as compared to hotel visitors. Canada, Washington, and Oregon account for approximately 16.39 percent of the RV park users. Another strong market area is Arizona (12.3 percent of RV park users), particularly central and southwestern portions of the State. The Sacramento Valley is a sizeable market for both RV park users as well as overnight hotel visitors. Not surprisingly, snowbirds and the movement of travelers during the fall and spring months heavily influence RV park users and their place of origin.

The RV park users and the overnight hotel visitors appear to be two distinct market areas. A vast majority of overnight hotel visitors are within close proximity whereas RV park users come from more distant origins.

- **Recreational Users**

The Bureau of Land Management operates a campground and other day use facilities at Walker Lake. Total visitation as recorded by BLM was 34,086 visits and a total of about 21,000 visitor days. A visitor day is defined as one visit on one day. At Sportsman's Beach total visits were 20,274 in 2001 and 12,629 visitor days. BLM sees heavier usage at Sportsman's Beach during the off-season primarily due to snowbirds moving through the area either south in fall or north in the spring. Additional information from BLM concerning the place of residence or length of stay for recreation users was not available. Given that a number of visitors are snowbirds traveling in RV units, information about RV



park visitors may be similar to those using Sportsman's Beach, particularly in terms of their place of residence.

- **Special Events**

Special events in the Hawthorne area generate approximately 15,100 visit and 7,050 visitor nights.

2.3 Relationship of the Area's Economy to that of the Larger Region

Mineral County's current relationship to that of the larger region is somewhat limited. The County has limited retail and wholesale trade activity, as many local residents must travel to other areas to purchase durable and non-durable goods as well as certain types of services.

Mining employment and associated economic activity has little connection to the larger region. In recent times, local mining employment and operations have been located in Mineral County. Often times with mining, the employment base is in a different location from the actual mining operation. With recent mining operations, the place of employment (Mineral County) has been the same as the place of residence for employees.

There are strong commuting patterns in Mineral County as well. The 2000 census provides commuting patterns for Mineral County Workers leaving Mineral County traveling principally to Churchill County, Lyon County, Washoe County and Nye County. In 2000, 198 workers traveled to these four counties. At the same time 117 workers from Churchill, Lyon and Washoe traveled to Mineral County.

Defense Department related activities have some connection with the Fallon Naval Air Station. However, the majority of economic related activity associated with the Hawthorne Army Ammunition Depot is located in Mineral County.

The strongest relationship of the area's economy to that of the larger region is directly and indirectly associated with water, transportation, and tourism. Walker Lake provides regional opportunities for recreation. As discussed in Section 4.0, the ability to sustain a sport fishery and water levels in Walker Lake is threatened by the lack of river inflows. This situation is attributed to upstream diversions for irrigated agriculture. Activities associated with the Lake help draw tourists to the area who in turn utilize local lodging, gaming, and service related industries in Mineral County. Prevailing economic conditions of the region can have some impact on the outdoor recreation and tourism occurring at Walker Lake and the greater Mineral County region. Carson City, Reno and surrounding areas provide the largest share of visitors staying overnight in the Hawthorne area (See Figure 2-5).

In addition to those coming to Mineral County to enjoy Walker Lake, the Hawthorne area in particular benefits from highway traffic and travelers on U.S. 95. Travelers using U.S. 95 stay overnight in Hawthorne, these visitations contribute to gaming,



services, and to a lesser extent, retail sectors of the local economy. National or western regional economic conditions can influence overall activity in Mineral County.

Figure 2-5
Major Markets for Overnight
Travelers to Mineral County





3.0 PUBLIC INFRASTRUCTURE

3.1 Sewer and Water Community

Sewer and water services are provided in the Town of Hawthorne, Mina and Luning. Currently, the Hawthorne, Mina and Luning service areas have sufficient water resources to accommodate a 60 percent increase in water use. Mina and Luning serve approximately 39 commercial and industrial customers and 135 residential customers. Hawthorne provides water service to 1,554 residential customers and 139 commercial and industrial users. The Hawthorne system has the capacity to serve approximately 6,000.

3.2 Communications

Telephone service is available in all communities in Mineral County. Internet service is also provided in most areas of the County. Radio and cell phone coverage is available throughout most of the County.

3.3 Energy Distribution

Energy available in Mineral County includes electricity and heating oil, and propane gas. Natural gas service is currently not available. Sierra Pacific Resources is the electrical energy provider to Mineral County.

3.4 Transportation

Transportation modes available to commercial traffic include highway and air service. U.S. 95 is a major north-south highway extending from Canada to Mexico. Average daily traffic volumes have been gradually increasing. Nevada Department of Transportation traffic counts show average daily traffic on the Hawthorne By-pass road increasing from 2,280 in 1992 to 2,700 in 2001. There is no recorded change in traffic counts for 2002. Similar increases were measured south of Schurz. The increase in traffic flows on 95 north of Hawthorne is largely coming from U.S. 95 connecting into Fallon. Comparing U.S. 95 traffic counts at the north and southern end shows a 600-count increase at the northern end of Mineral County and a 400-count increase on the southern end. U.S. 95 through Mineral County also serves as a major route connecting to U.S. 395 to the Los Angeles Basin and Interstate 80.

The Hawthorne municipal airport is located immediately north of the town along Bonanza Road and U.S. 95. Ground access to the airport is from U.S. 95. The airport was originally developed and operated by the U.S. Navy. In 1962 the facility was transferred to county ownership and operation. There are three runways, 2 dirt and 1 asphalt. The general aviation area, located at the south end of the airport, consists of one fixed base operator (FBO)/terminal building and support areas including aprons, hangers, fueling facilities and related activities. In the terminal area there are six hangers, one of which is owned by the County. In addition, there is a wood frame 25X50 terminal building with FBO office. An aircraft-parking apron accommodating 49

tie down spaces is located in the terminal area. A 65-acre industrial park is being developed along U.S. 95 to the west of the terminal area.

There are no other local transit operators in the County. There is currently no commercial rail service to Hawthorne. The Department of Defense operates and maintains the branch rail to Hawthorne for dedicated purposes.

3.5 Health Care

The Mount Grant Hospital has three licensed agencies, the acute hospital, skill nursing facility, and the adult day care center.

- **Acute Care:** Mt. Grant General Hospital is licensed for eleven acute care beds. Two beds are equipped for ICU/CCU care, and the remaining beds are designated for medical/surgical. There are five physicians on the active medical staff and two physician assistants.
- **Skilled Nursing Facility:** The Lefa L Seran Skill Nursing Facility has 24 licensed beds for long-term care. The levels of care provided range from skilled to intermediate.
- **Emergency Room:** The emergency room at Mt. Grant General Hospital is open 24 hours a day to render urgent medical care for major injuries and illness. Two certified physician's assistants in conjunction with three local physicians provide 24-hour coverage. Modern instrumentation is found in the emergency room and a highly trained, motivated staff is there to assist during medical emergencies. For medical emergencies that require care beyond the scope of services offered, air ambulance service is located in Reno and is capable of responding and being on hospital premises within 45 minutes.
- **Laboratory:** two well-qualified medical technologists, one medical laboratory technician and one clerk/phlebotomist staff the laboratory. Laboratory services are available 24 hours a day, with call-out after office hours and on weekends. State-of-the-art instrumentation allows for a great number of in-house testing, making test results available to your physician today, not tomorrow. Specialty testing is sent to a reference laboratory in Reno daily, and results are returned to the hospital within 24 hours.
- **Adult Day Care:** The Sunrise to Sunset Adult Day Care Center is licensed to care for five clients. The center operates Monday through Friday from 7:00am to 7:00 pm. Physician referral is required.

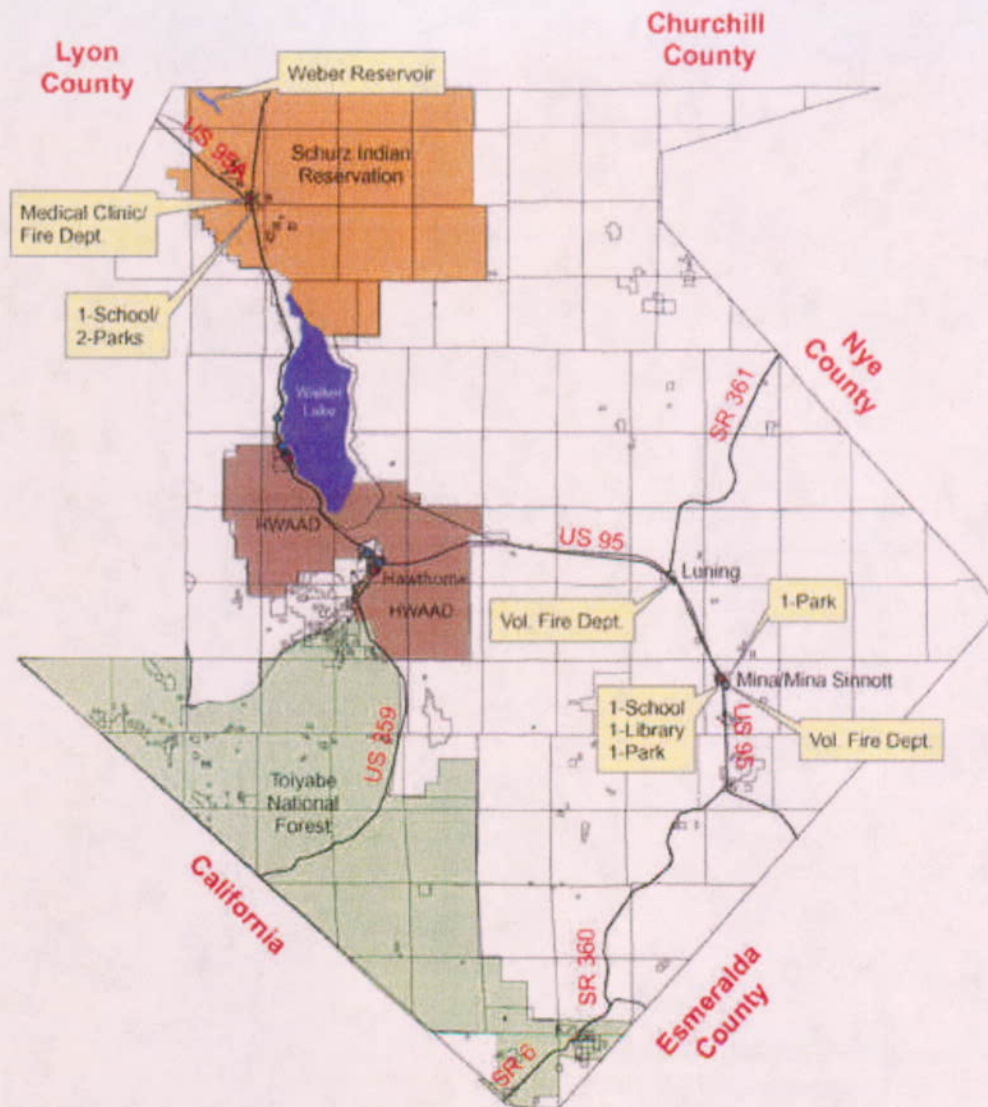
Other services include: homemaker service for elderly, blood bank, radiology, electrocardiogram, surgery, respiratory therapy, dietitian, nursing, and consulting physicians. The specialties include: 1) cardiology, 2) ob/gyn, 3) ear, nose and throat, 4) podiatry, 5) ophthalmology, 6) gastroenterology, 7) psychiatry, 8) endocrinology, 9) orthopedics, 10) Urology, and 11) general surgery.

3.6 Schools and Other Public Facilities

There are three elementary, one middle school, and one high school within .5 miles of the highway. These facilities are generally less than .25 miles from the highway. There are approximately 865 children enrolled in public schools. Figure 3-1, 3-1A and 3-1B show the location of public facilities in relation to the U.S. Highway 95 corridor.

Table 3-1 Public Facilities Mineral County: 2003	
Area	Facilities
Hawthorne to Walker Lake	
Elementary Schools	1
Middle/Secondary Schools	1
Fire Station/Public Safety Building	2
Library	1
Parks	4
Campgrounds	3
Hospital	1
Schurz Area	
Elementary Schools	1
Middle Schools	0
Fire Station/Public Safety	1
Library	0
Parks	2
Medical Clinic	1
Mina to Luning	
Elementary Schools	1
Middle Schools	0
Fire Station/Public Safety	2
Library	1
Parks	1
Total Facilities	24

Figure 3-1
Location of Public Facilities



The scale and configuration of all information shown herein are approximate only and are not intended as a guide for design or survey work. Reproduction is not permitted without prior written permission from the Mineral County Nuclear Projects Office.

Figure 3-1A
Public Facilities in Hawthorne



4.0 NATURAL RESOURCES

4.1 Land and Water Resources

4.1.1 Lands

Mineral County is located in the west-central portion of Nevada and borders the State of California on the southwest. Mineral County is the sixth smallest county in Nevada, covers approximately 4,019 square miles, (9,938 square kilometers) and accounts for approximately 3.5 percent of Nevada's total surface area of 110,540 square miles (286,297 square kilometers). Of Mineral County's 2,572,160 acres of surface area, 2,091,422 acres, or just over 82 percent of the county's total area are controlled and managed by the federal government. Of these federally managed public lands approximately 1,561,512 acres of Mineral County are managed by the U.S. Bureau of Land Management (BLM), and 382,499 acres are managed by the U.S. Forest Service (USFS). The USFS managed lands include a portion of the Toiyabe National Forest, which covers much of the southernmost portion of Mineral County. Relative to Nevada's seventeen counties, Mineral County ranks as the eighth highest in terms of its percentage of federal land ownership and fifth lowest in terms of the actual area of federal ownership. Major land uses for Mineral County are shown in Figure 1A. Figure 2A through 4A show land use in Hawthorne, Walker Lake, Mina, and Luning.

Most land in Mineral County is public land used for livestock grazing, mining, and recreation. In the Hawthorne area, the Department of Defense has large land holdings used for storage of conventional weapons. At the very northern end of Mineral County there is the Walker River Paiute/Shoshone reservation that has a population of approximately 860. Within the reservation there is residential housing, small commercial establishments, and a few Tribal administration buildings. There is a Tribal school just south of the intersection with U.S. Highway 95A.

South of the Reservation, the Highway corridor runs parallel to Walker Lake for approximately 25 miles. There are two camp/rest areas along the highway near Walker Lake. The Highway passes through the community of Walker Lake. There are a small number of tourist commercial uses along the Highway as well as residential housing.

The predominate land use from the community of Walker Lake to Hawthorne is Department of Defense lands. The Hawthorne Army Ammunition Depot (HWAAD) is a government owned contractor operation that encompasses 147,044 acres including the southern one-third of Walker Lake. The mission of HWAAD is to serve as an ammunition depot; produce, assemble, test, and demilitarize munitions; maintain equipment; and provide tenant support. HWAAD has 1,793 permanent, earth covered munitions magazines and 97 permanent explosive storehouses, with a combined storage capability of 92,250,000 cubic feet (U.S. Department of the Air Force, 1991).

In the Town of Hawthorne land uses are mixed. There are primarily commercial and residential developments on the highway corridor. Several of the commercial establishments along the corridor are motels. Many of the major motels in the area

Figure 1-A
Major Land Uses
For Mineral County

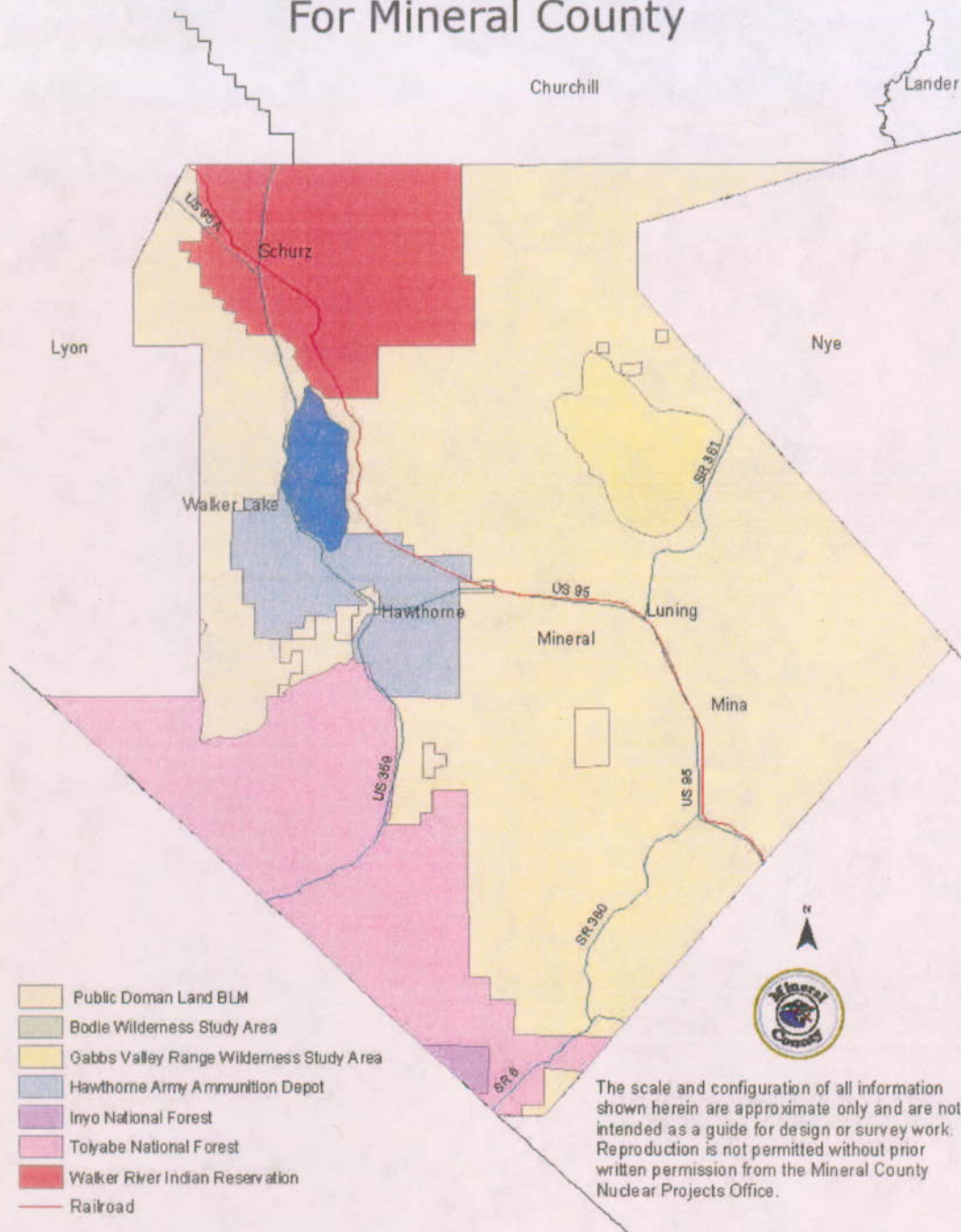
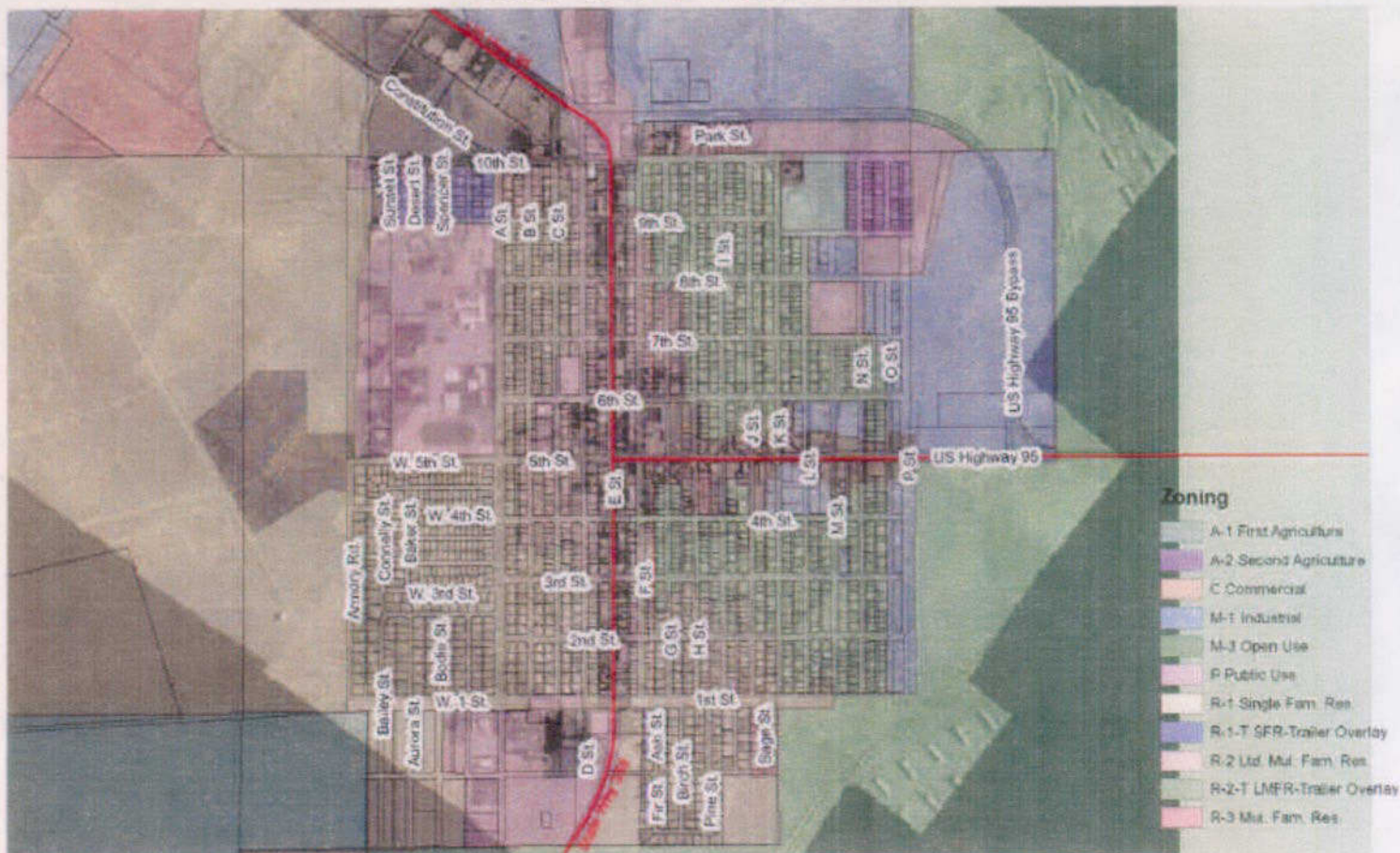


Figure 2-A
Land Use in Hawthorne



The scale and configuration of all information shown herein are approximate only and are not intended as a guide for design or survey work. Reproduction is not permitted without prior written permission from the Mineral County Nuclear Projects Office.



Figure 3-A
Land Use in Walker Lake

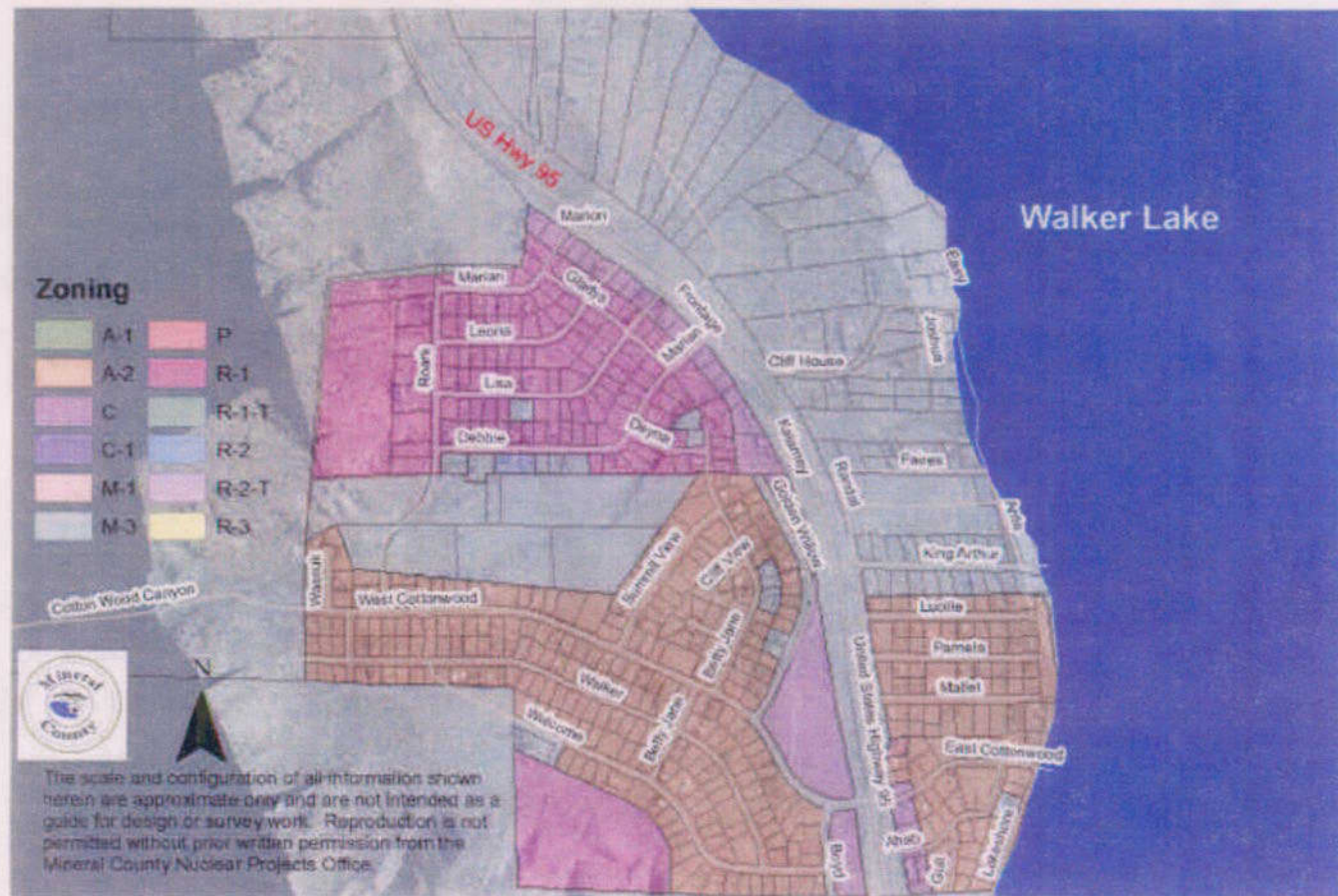


Figure 4-A
Land Use in Mina



**Figure 5-A
Land Use in Lunenburg**



are located adjacent to the highway effectively increasing the population density of the corridor. There are also a number of RV parks along in the corridor. Most of these parks are adjacent to the highway. Their presence, particularly in the summer and fall months effectively increases the permanent population along the corridor. In all there are approximately 149 RV spaces in the corridor. Most are located in Hawthorne. Lands immediately south and east of Hawthorne are under the control of the Department of Defense.

In the Towns of Mina and Luning, which are located adjacent to U.S. 95, there are a variety of land uses. The most predominate land use are small tourist commercial and residential. The location of many residential and commercial establishments within the corridor is much closer than default assumed in the Radtran Analysis used in the Yucca Mountain DEIS. In the Town of Hawthorne, commercial establishments along U.S. 95 are generally within 15 to 30 feet of the highway.

4.2 Water Resources

This section describes the surface and groundwater resources available in Mineral County

4.2.1 Surface Water

Major surface water features are shown in Figure 4-1. With the exception of Walker Lake and Walker River there are few perennial streams in the County. Most of the perennial streams are located in the Wassuk Range west of Walker Lake.

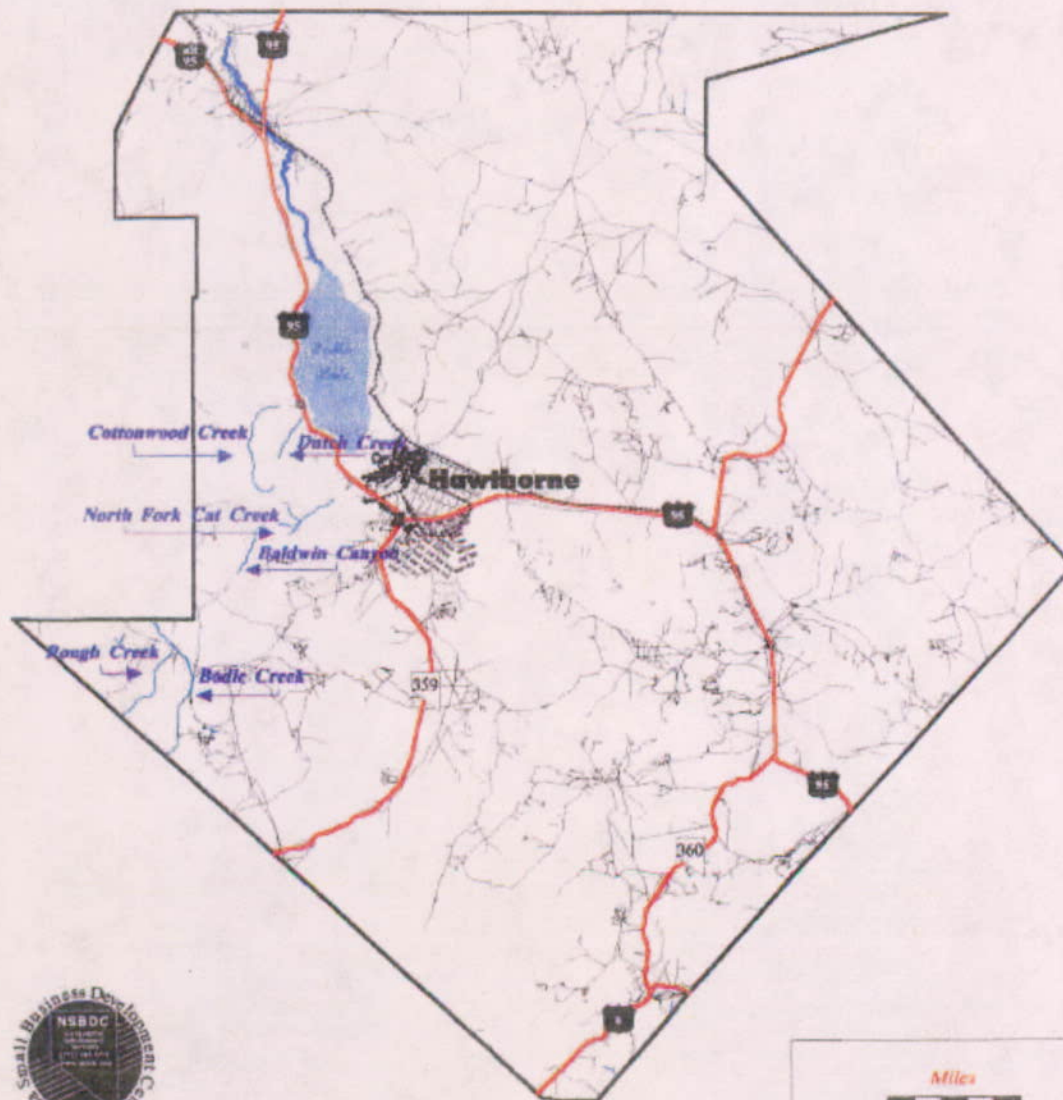
- **The Walker River System--Confluence and Main stem**


Today, in the absence of the effects of an ascending and descending Lake Lahontan, or the natural shifting of the Walker River's channel through the Adrian Valley, the river's course continues through Mason and Campbell valleys and enters Walker Lake. Seven miles downstream from Yerington, the Walker River runs alongside the Mason Valley Wildlife Management Area, an extensive natural habitat area of over 13,000 acres maintained by the Nevada Division of Wildlife. Just beyond this area, at the north end of Mason Valley, the Walker River begins a swooping clockwise turn from north to east to southeast and enters the Walker River Paiute Indian Reservation. Here, the Walker River flows through Campbell Valley and after some 13 miles, enters Weber Reservoir. From Weber Reservoir, the Walker River continues mostly south for another 21 miles across alluvial flats of dried lakebed before entering Walker Lake.

- **Walker Lake**

Walker Lake is the terminal (i.e., without outflow) lake of the Walker River system. It represents one of only two remaining major remnants of ancient Lake Lahontan, an Ice Age lake, which covered much of northwestern Nevada as recently as 12,500 years ago. Walker Lake is approximately 25 miles long, just over five miles wide, about 90

Figure 4-1
Major Water Features
Mineral County






feet deep, and contains just over two million acre-feet of water. Walker Lake's waters are of relatively poor quality, characterized by high concentrations of total dissolved solids (TDS), consisting mostly of salts, relatively high temperatures, low dissolved oxygen, and the presence of hydrogen sulfide. The lake also tends to support large blooms of plank tonic blue-green algae, which, when combined with high TDS concentrations and low dissolved oxygen, creates a relatively inhospitable environment to fish species, particularly native Lahontan cutthroat trout. Except where the Walker River enters the lake at its northern end, Walker Lake's shores are virtually devoid of major riparian plant growth due, no doubt, to highly variable lake levels. In this respect, Walker Lake's barren shoreline resembles the other classic Great Basin desert terminal lakes (e.g., Pyramid Lake in Nevada, Mono Lake in California, and the Great Salt Lake in Utah).

Walker Lake's future as a viable fishery has been seriously threatened over the last one hundred years or so due to insufficient inflows from the Walker River. From data covering the 1939-1993 period of record, the U.S. Geological Survey (USGS) estimated that an average of 76,000 acre-feet per year flowed into the lake from the Walker River. However, due to the highly variable hydrology of this region, the Walker River has rarely produced "average" inflows to Walker Lake. As an example, during the recent ten-year period of 1987-1996, which encompassed the eight-year drought period of 1987-1996, Walker Lake received inflows from the Walker River in essentially only three years (1987, 1995, and 1996). Nonetheless, under such "average" hydrologic conditions, in addition to Walker River inflows, the USGS estimated that Walker Lake might expect to receive an average of 14,000 acre-feet per year of lake surface precipitation (4.9 inches per year), 11,000 acre-feet per year of local ground water inflows, and 3,000 acre-feet per year of local surface water inflows. More than off-setting these inflows into Walker Lake, however, has been a rate of lake surface evaporation totaling approximately 137,000 acre-feet per year (4.1 feet per year), thereby producing a water budget deficit for Walker Lake of approximately 33,000 acre-feet per year over the 1939-1993 study period. With the exception of the 1997-98 winter, water flows into Walker Lake have been relatively small.

Since I.C. Russell took initial lake recordings in 1882, Walker Lake's surface elevation has declined by 134 feet, from approximately 4,080 feet above mean sea level (MSL) to 3,946 feet MSL presently (March 1996). This has resulted in a decline in the lake's depth from 224 feet recorded in 1882 to only 90 feet at the present time. Today, Walker Lake is only 50 percent of its 1882 surface area and 28 percent of its 1882 volume. The decline in Walker Lake's volume from an estimated nine million acre-feet in 1882 to just over two million acre-feet by 1996 has produced the most pronounced effects on the lake's water quality. Primarily as a result of this dramatic reduction in volume, Walker Lake's concentration of total dissolved solids has risen from 2,560 milligrams per liter (mg/l) reported by Russell in 1882 to nearly 13,000 mg/l presently (1996). Primary contributors to Walker Lake's salt content have been the re-dissolution of salts found in lakebed sediment layers, a groundwater inflow component, and inflows from the Walker River.



For the period of 1903-1994, the USGS estimated that approximately 30 percent of Walker Lake's total salt "load" (i.e., its total quantity of salts) has come from the re-dissolution of salts embedded in lakebed sediment layers. These salts have accumulated over time in the lake's bed due to prior desiccations of Walker Lake, as well as from salt deposition from wind-blown salts falling onto the lakebed during such dry periods. It was also estimated that groundwater inflows within the lake have accounted for approximately 20 percent of the lake's present salt load, while the remaining 50 percent of Walker Lake's total salt loading has come from the Walker River itself.

TDS concentrations within Walker Lake now stand at approximately 13,000 mg/l, a level well above TDS levels of the Walker River as it enters the lake (approximately 100-500 mg/l, depending on rate of inflow). In a 1994 water analysis of Walker Lake conducted by the USGS, which followed essentially eight years of virtually no freshwater inflows, TDS concentrations within Walker Lake were found to be 13,400 mg/l, and consisted primarily of sodium chloride, dissolved carbon, and sulfate. In terms of the ionic concentrations found within Walker Lake, sodium amounted to 4,100 mg/l (31 percent by volume), chloride amounted to 3,200 mg/l (24 percent), sulfate amounted to 3,000 mg/l (22 percent), bicarbonate 2,400 mg/l (18 percent), and carbonate 670 mg/l (5 percent).

- **Weber Reservoir**

Weber Reservoir is located on the Walker River Paiute Indian Reservation and is the only reservoir located on the main stem of the Walker River. The dam was completed in 1935 with a built-in capacity of 13,000 acre-feet; however, in 1972, the U.S. Geological Survey (USGS) estimated that sedimentation had reduced the reservoir's storage capacity to 10,700 acre-feet. Stored waters have no priority date; however, the reservation does have a priority date of 1859 for a flow rate of 26.25 cfs at the Wabuska gage (located at the north end of Mason Valley at the entrance to the reservation) which may be used to fill this reservoir, with such waters subsequently being used for the irrigation of lands on the reservation.

4.2.2 Ground Water

Mineral County stretches across parts of two of Nevada's fourteen major hydrographic regions or water basins (watersheds) with approximately the eastern half of the county located within the Central Region (Hydrographic Region 10) and the remaining western half of the county located within the Walker River Basin (Hydrographic Region 9). In addition to the two major hydrographic regions encompassing Mineral County, the county also contains, either wholly or partially, twenty-three hydrographic areas and hydrographic sub-areas. These hydrographic units typically consist of a single valley or discrete drainage area within a larger hydrographic region.

Table 4.1 shows the current groundwater basin status, permitted water rights and pending applications. Most basins in Mineral County are currently designated. The availability of groundwater is critical to future growth and development of the County. It is unlikely the

County could rely upon surface water resources for a future source of municipal and industrial supply. It is also important to note, that unlike other areas in Nevada there is very little irrigation water use in and around populated areas of Mineral County. The option to convert irrigation water to another use is not available.

Table 4-1 Mineral County Hydro Basins: 2002

Basin	Active Pending Acre Feet	Perennial Yield	Designated
110b	2,092.96	700	No
110c	15,692.80	5,000	Preferred Mun., Irr. Denied
110a	637.40	1,500	No
111B	0	700	No
112	0	300	No
113	2,596.49	150	No
114	132.41	1,400	No
115	0	150	No
119	42.10	1,000	No
120	0	150	No
121a	3,168.72	600	All
121b	300.29	200	All
136	138.65	400	No
135	133.36	2,500	No
122	21,186.16	5,000	All
124	39.71	250	All
123	115.67	500	No
108	159,430.38	25,000	All
107	60,672.09	17,000	Portion, Con, Ind, Stk
109	20,390.39	5,500	No
116	121.00	600	No
118	1,202.37	4,000	No

Source: Nevada Division of Water Resources, 2002.

4.2.3 Water Use

In 1995 Mineral County's total water withdrawals were estimated at 19,714 acre-feet, or only 0.5 percent of estimated total water withdrawals within the State of Nevada (See Table 4.2). Total water withdrawals in 1995 were down 44.3 percent from total withdrawals in 1990 and also down 53.4 percent from total water withdrawals estimated in 1985. These declines were due entirely too reduced levels of irrigation

water use from prior periods. Of the total 1995 water withdrawals, public supplied water withdrawals (i.e., municipal and industrial water withdrawals) were estimated at 1,255 acre-feet, or 6.4 percent of total water withdrawals. As shown in Table 4-2, it may be seen that water withdrawals in Mineral County in 1995 were dominated by irrigation withdrawals (79.6 percent of total water withdrawals), while mining water withdrawals accounted for 12.8 percent of total withdrawals and domestic uses accounted for 5.8 percent of total water withdrawals in Mineral County.

More recent water data indicates that Mineral County has a per capita use rate of 446 gallons per day. This relatively high per capita use can be attributed to the number motel/hotel units relative to the local population.

Table 4-2 Mineral County Water Usage				
(Estimated Annual Water Use by Type (Acre-Feet per year))				
Water Use by Major Category	1985	1990	1995	Percent of 1995 Total Water Use
Total Water Withdrawals/Use	42,348	35,402	19,714	100.00%
Domestic Water Withdrawals	1,117	913	1,153	5.85%
Commercial Water Withdrawals	291	1,199	280	1.42%
Industrial Water Withdrawals	0	0	0	0%
Thermoelectric Water Withdrawals	0	0	0	0%
Mining Water Withdrawals	605	1,646	2,520	12.78%
Livestock Water Withdrawals	90	34	34	0.17%
Irrigation Water Withdrawals	40,123	31,364	15,682	79.55%
Public Use & Losses	123	246	45	0.023%
<i>Notes: "Water Use" and "Water Withdrawals" are equivalent terms, but are not the same as consumptive use and do not account for return flows. Total Water Withdrawals and Domestic, Commercial, Industrial, and Thermoelectric Water Withdrawals include both public supplied and self-supplied water. Mining Water Use includes both mine consumptive use (i.e., processing) and mine dewatering. One acre-foot is equivalent to 325,851 gallons.</i>				

Source Data: U.S. Geological Survey (USGS); U.S. Department of Agriculture (USDA), Nevada Agricultural Statistics Service; Nevada State Demographer; Nevada Division of Water Planning (NDWP).

Based on 1995 water use data, along with comparable period population and employment figures, it was estimated that Mineral County's public supplied water use per person (also referred to as municipal and industrial, or M&I, water use), based only on the estimated population served by public supply water systems, was 212 gallons per person per day, compared to 224 gallons per person per day in 1985, and 342 gallons per person per day in 1990. Table 4.3 presents a number of estimated water usage rates for Mineral County for the years 1985, 1990, and 1995 based on water use per person, per worker, or per occupied housing unit, i.e., per household.

Table 4-3 Mineral County Water Usage Rates

(Gallons per Person, per Worker or per Household per Day) Water Usage Rates by Type/Sector 1985 1990 1995	1985	1990	1995
Municipal & Industrial Water Use per Person	224	342	212
Domestic Public Supplied Water Use per Person	163	127	157
Total Domestic (Residential) Water Use per Person	161	127	157
Total Commercial & Industrial Water Use per Worker	127	543	116
Total Domestic Water Use per Household	413	322	393

Notes: "Water Use" and "Water Withdrawals" are equivalent terms, but are not the same as consumptive use and do not account for return flows. "Municipal & Industrial Water Use per Person" includes public supplied domestic, commercial, industrial and thermoelectric water withdrawals divided by the resident population served by such public supply water systems; "Domestic Public Supplied Use per Person" includes only public supplied residential water use divided by the resident population served by the public supply water system; "Total Domestic (Residential) Water Use per Person" includes both public supplied and private supplied residential water use divided by the total county resident population; "Total Commercial and Industrial Water Use per Worker" equals both public supplied and self-supplied water withdrawals divided by the county's total covered employment, excluding mining water use and mining employment; "Total Domestic Water Use per Household" includes both public supplied and self-supplied water divided by the number of occupied housing units. Households are equivalent to occupied housing units and are not the same as total housing units. One acre-foot is equivalent to 325,851 gallons.

Source Data: U.S. Geological Survey (USGS); Nevada State Demographer; U.S. Bureau of the Census; Nevada Department of Employment, Training and Rehabilitation (DETR); Nevada Division of Water Planning (NDWP).

From a 1995 survey, it is estimated that 2,900 acres were irrigated in Mineral County in that year (7,440 irrigated acres in 1985 and 5,800 irrigated acres in 1990). This amount of irrigated acreage comprised approximately 0.4 percent of the state's total 1995 irrigated acreage of 715,439 acres (843,760 acres in 1985 and 728,650 acres in 1990). The 1995 level of irrigated acreage placed Mineral County as the third lowest in terms of county irrigated acreage in Nevada at that time only ahead of Carson City and Storey County.

Based on 1995 estimates of both total irrigated acreage and total irrigation water withdrawals, the average water use (withdrawals) on irrigated acres in Mineral County was estimated at approximately 5.4 acre-feet per acre per year. Mineral County's 1995 irrigation conveyance losses were estimated at 1.6 acre-feet per acre per year, thereby leaving irrigation water available for consumptive use of approximately 3.8 acre-feet per acre per year (See Table 4-4).

Figure 4-2 shows the projected municipal and industrial water use in Mineral County based upon population projections in Table 2-1. Overall, municipal and industrial water use will rise slowly and generally will not exceed the availability of current resources.

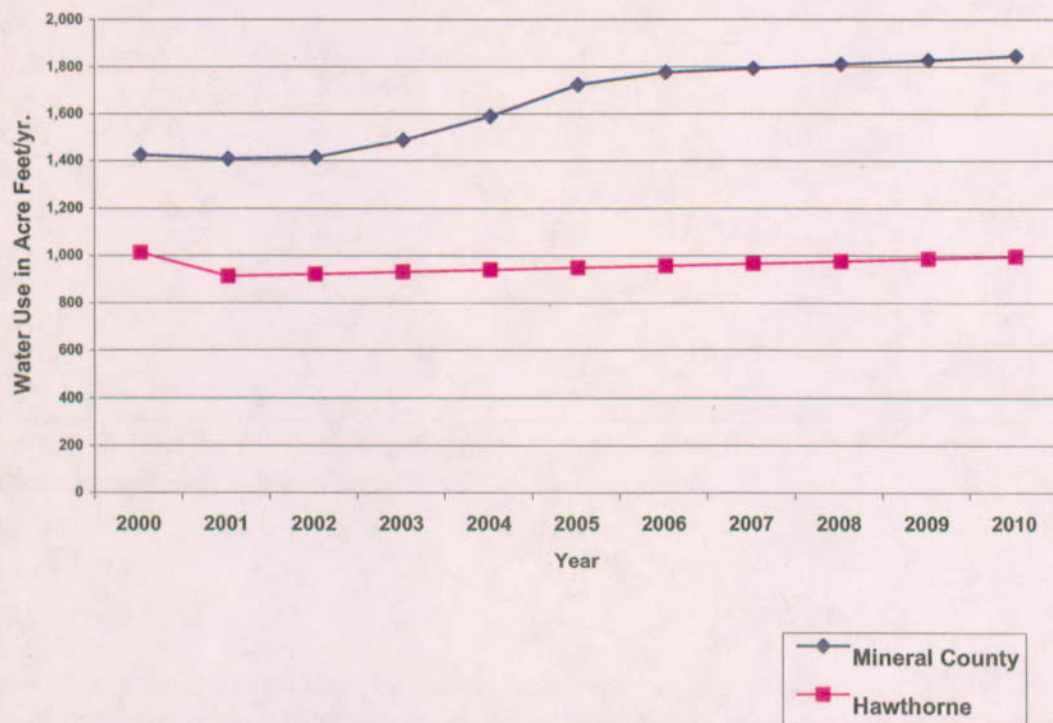
Table 4-4 Mineral County Agricultural Water Use Analysis

(Acres, Acre-Feet, Acre-Feet per Acre per Year) Agricultural-Related Measure 1985 1990 1995)			
Total County Irrigated Acreage (Acres)	7,440	5,800	2,900
Total Irrigation Water Withdrawals (Acre-Feet)	40,123	31,364	15,682
Average Irrigation Water Use (Acre-Feet/Acre/Year)	5.4	5.4	5.4
Irrigation Conveyance Losses (Acre-Feet/Acre/Year)	1.6	1.6	1.6
Water for Crop Consumptive Use (Acre-Feet/Acre/Year)	3.8	3.8	3.8
Total Farm Marketing's (Millions of Dollars)	\$0.955	\$2,228	\$2,476

Notes: Irrigated acreage is not the same as water-righted acreage and includes only that acreage estimated to have actually received irrigation water during the irrigation period. One acre-foot is equivalent to 325,851 gallons.

Source Data: U.S. Geological Survey (USGS); U.S. Department of Agriculture (USDA), Nevada Agricultural Statistics Service; U.S. Department of Commerce, Bureau of Economic Analysis (BEA), Regional Economic Information System (REIS); Nevada Division of Water Planning (NDWP).

Figure 4-2
Mineral County and Hawthorne Projected Water Use



Appendix A: Mineral County Combined Statement of Revenues and Expenditures

Revenues	2004	2002	2001
Taxes	\$1,924,252	\$1,650,706	\$1,797,770
Licenses and Permits	\$ 200,783	\$151,299	\$150,842
Intergovernmental	\$5,640,233	\$4,122,038	\$4,207,053
Charges of Services	\$1,134,302	\$887,879	\$926,665
Fines and Forfeits	\$ 293,197	\$237,604	\$284,100
Miscellaneous	\$ 272,830	\$978,966	\$456,725
Total Revenues	\$9,465,597	\$8,028,492	\$7,823,162
General Government	\$1,801,417	\$2,438,725	\$1,552,777
Public Safety	\$3,375,867	\$2,863,255	\$2,943,338
Judicial	\$ 657,879	\$636,527	\$711,951
Highways and streets	\$ 980,094	\$1,015,844	\$1,040,537
Health and sanitation	\$ 226,373	\$348,316	\$391,296
Welfare	\$ 428,738	\$285,522	\$280,574
Culture and Recreation	\$ 317,818	\$345,542	\$321,598
Community Support	\$1,392,971	\$362,840	\$592,412
Debt Service	\$ 97,611	\$46,675	\$54,433
Intergovernmental	\$ 17,151	\$74,490	\$58,500
Capital Outlay		\$54,640	\$52,696
Total Expenditures	\$9,295,919	\$8,472,376	\$8,100,212
Excess (Deficiency)	\$169,678	-\$443,884	-\$227,050
Total other financing sources (uses)	\$50,000	\$100,000	\$150,000
Total Excess (Deficiency)	\$274,678	-\$343,884	-\$127,050
Fund Balance-Begin, July 1		\$2,599,342	\$2,726,391
Fund Balance-End, June 30		\$2,255,457	\$2,227,177

Mineral County Yucca Mountain Oversight Program

[home](#)[News](#)[History](#)[Newsletters](#)[Links](#)[Transportation](#)

Publications

January
2007

Mineral County Board of County Commissioners Comment on Scoping Meetings.

The Mineral County Board of County Commissioners comment on the DOE's Notice of Intent to Prepare a Supplement to the Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, NV.

July 2006

Mineral County Community Survey Results 2006

As part of its impact assessment and oversight program of Yucca Mountain, Mineral County initiated a new 2006 community survey using a revised set of questions that are substantially different from previous Yucca Mountain survey efforts. Survey questions were directly related to the Yucca Mountain project and more generally related to nuclear energy, and transportation of nuclear waste to Yucca Mountain. 2006 Survey questions can be found in Appendix A. Several of the questions used in this year's survey were the same as those used by the Nuclear Energy Institute to gauge public opinion about nuclear waste and nuclear energy.

July 2005

Mineral County Nuclear Waste Projects Office July 2005 Community Survey Results

Approximately 155 face- to-face surveys were conducted in the Hawthorne area as a follow-up to the 2003 resident's survey in order to ascertain views and knowledge of the repository program from Mineral County residents. The 2005 survey questions duplicated many of those used by the State of Nevada and used by the 2003 Mineral County survey. Using similar questions allows for comparability with other survey results concerning the Yucca Mountain project. A summary of comparative findings can be found in Section 3.0 of this report.

Update
2005

Mineral County Baseline Report Update 2005

This report update the Baseline Report of 2004 for Mineral County showing existing conditions as of 2005. The report provides the most current information on social, economic, public services and facilities, and natural resources available in Mineral County and its communities. This report also contains information about population, labor force, employment, wages, fiscal conditions, natural resources, and land uses. The report will be used to measure potential changes to Mineral County as a result of the high-level nuclear waste repository at Yucca Mountain and associated transportation activities.

July 2005

Mineral County Nuclear Waste Projects Office July 2005 Community Survey Results

Approximately 155 face- to-face surveys were conducted in the Hawthorne area as a follow-up to the 2003 resident's survey in order to ascertain views and knowledge of the repository program from Mineral County residents. The 2005 survey questions duplicated many of those used by the State of Nevada and used by the 2003 Mineral County survey. Using similar questions allows for comparability with other survey results concerning the Yucca Mountain project. A summary of comparative findings can be found in Section 3.0 of this report.

August
2004

FEIS Comments

Letter to Dr. Margaret Chu, Director, OCRWM, U.S. Department of Energy.

Comments from the Mineral County Board of County Commissioners to the Final Environmental Impact Statement for the proposed Yucca Mountain Nuclear Waste Repository.

July 2004 Mineral County Business and Student Survey Yucca Mountain Project, 2004

Question from the survey: Some people think Nevada should stop opposition to the repository and instead try to make an agreement with the federal government for benefits. Other people believe Yucca Mountain is a poor choice, and that state resistance should not be weakened or compromised by entering into an agreement for benefits. Do you believe the state should stop its opposition and make an agreement, or do you think the state should continue to do all it can to oppose the repository, even if that means turning down benefits that may be offered by the federal government? To see the report and survey results follow the link.

September 2004 Mineral County Baseline Report Update 2004

This report is an update of the previous baseline for Mineral County showing existing conditions as of 2004. The report provides the most current information on social, economic, public services and facilities, and natural resources available in Mineral County and its communities. This report also contains information about population, labor force, employment, wages, fiscal conditions, natural resources, and land uses. The report will be used to measure potential changes to Mineral County as a result of the high-level nuclear waste repository at Yucca Mountain and associated transportation activities.

October 2004 Transportation Emergency Preparedness Program Model Needs Assessment Hawthorne Army Depot Fire and Emergency Services'October 2004

Assessment of current capabilities and resources of Hawthorne Army Ammunition Depot's (HWAD) fire and emergency services particularly as they relate to Yucca Mountain and shipments of high-level nuclear waste and spent nuclear fuel through Mineral County.

April 8, 2004 This letter is addressed to Dr. Letter to Dr. Margaret Chu, Director of Office of Civilian Radioactive Waste Management, DOE and Mineral County State of Nevada's resolution regarding the transportation of high-level nuclear waste and spent nuclear fuel. Chu and is from the Mineral County Board of County Commissioners and begins... "Although your instructions for examining potential railway routes to Yucca Mountain restricted study of any route not included in the EIS, the Mineral County Board of Commissioners encourages you to consider two additional rail routes. Mina 6 and Mina 6A option, as identified in the Department of Energy's Preliminary Rail Access Study dated January 1990, offer advantages in terms of total cost, construction, feasibility, and overall environmental impacts. The Mina options would include existing track and previously abandoned rail bed that extended nearly to Yucca Mountain. The Mina options and use of the northern Pacific branch line also provides another major advantage in that all nuclear shipments can bypass the Salt Lake City, and Denver metropolitan areas.

Resolutions

The Board of County Commissioners, County of Mineral State of Nevada.

Resolution regarding the transportation of high-level nuclear waste and spent nuclear fuel in the event the United States Congress mandates development of a high-level waste repository or interim storage facility within the state of Nevada. The Board of Mineral County Commissioners is responsible to ensure that any and all impacts upon the environment, the infrastructure, the economy and/or the lifestyle of Mineral County residents are fully assessed and that appropriate requests for mitigation of such impacts are submitted to the federal government on all relevant

matters including but not limited to; medical services, early warning systems, safety of the public and emergency response; and...

April 2003 Mineral County's Baseline Report

This report provides a baseline description of existing conditions in Mineral County as of 2002. The report provides information on social, economic, public services and facilities, and natural resources available in Mineral County and its communities. The report will be used to measure potential changes to Mineral County as a result of the high-level nuclear waste repository at Yucca Mountain and associated transportation activities. Additionally, material presented in this report represents a compilation of previous investigations by Mineral County for Yucca Mountain oversight activities such as the Transportation Status Report and Impacts to Mineral County Visitors. The baseline report contains information about population, labor force, employment, wages, fiscal conditions, natural resources, and land uses. The Yucca Mountain draft and final environmental impacts statement contained very little information about mineral County. This report will help supplement the lack of information developed by DOE. The baseline report will be updated periodically as part of Mineral County's on-going efforts to assess potential impacts associated with the Yucca Mountain Project.

Sept 2002 Impacts to Mineral County Visitors and Waste Transportation to Yucca Mountain

The purpose of this report is to identify key visitor markets for Mineral County, the Walker Lake and Hawthorne areas. More importantly, key visitor markets will also help identify likely highway transportation routes to the Walker Lake and Hawthorne region used by visitors. Currently, vehicle use is the only mode of transportation available to access Mineral County. Visitors to Mineral County provide sizeable economic benefits to the local economy.

December 2003 Preliminary Assessment of Emergency Response Capabilities for Proposed Shipment to Yucca Mountain, Mineral County, December 2003

Mineral County has completed an initial review of the likely impacts associated with high-level waste and spent nuclear fuel shipments to Yucca Mountain. The initial assessment was largely focused on the additional costs and fiscal impacts to be incurred by Mineral County to prepare for waste shipments. The initial emergency management assessment was part of the Mineral County Impact Report.

July 2003 Mineral County Community Survey of Yucca Mountain Results, 2003

The characterization of Yucca Mountain as a potential site for the first high-level nuclear repository is strongly opposed by the State of Nevada. Surveys conducted by the State indicate that roughly 70 percent of Nevadan's oppose the development of the repository at Yucca Mountain. The State survey results strongly reflect the opinions of Clark County, Nevada due to the population distribution in the State and the survey methodology. For example, in the 1991 State telephone survey only 19 of the 504 respondents were from Affected Units of Local Government (AULG) other than Clark County. It is possible that none of the respondents in the 2002 State survey were from Mineral County.

The State survey was intended to represent the views of the State in general, but provides little or no insight about the opinions and beliefs held by Mineral County residents with respect to the repository program. As part of the impact assessment and oversight program, Mineral County Board of Commissioners decided to initiate their public opinion survey in the Spring of 2003. Survey questions were directly related to the Yucca Mountain project and associated transportation elements. Survey questions can be found in Appendix A.

August 2002 Transportation Status Report

There are a number of generator sites in the western United States that will be shipping spent nuclear fuel and high-level waste to Yucca Mountain. These sites are comprised of commercial reactor sites, and DOE facilities in four western states. Those located to the east will probably use highway alternatives such as Interstate 80 to U.S. 93 and 6 in Nevada. The Hanford site and WPPS in eastern Washington will potentially generate the largest number of shipments to Yucca Mountain. US 95 provides easy access to Yucca mountain and avoids larger metropolitan areas encountered using the Interstate Highway System.

February 2002 A Preliminary Assessment of Rail Transportation Impacts in Mineral County

This report looks at property value impacts associated with rail operations in Mineral County. Although, Mineral County is not actively being considered as a route to Yucca Mountain, the spur line through the County provides the shortest and cheapest option to haul high-level nuclear waste to Yucca Mountain. For its preliminary impact assessment of the Yucca Mountain Project, Mineral County did consider the impacts to property value along potential truck routes to Yucca Mountain, this assessment is part of Mineral County's on-going efforts to understand the positive and negative aspects of activities related to the Yucca Mountain Project. The assessment of property value impacts largely mirrors studies completed by the State of Nevada for the Las Vegas area, Reno/Sparks, and Elko County.

September 2002 Hawthorne Impact Report, Transportation of Spent Fuel by Highway to Yucca Mountain

If a high-level waste repository opens at Yucca Mountain, south of Hawthorne on US 95, a large number of truck shipments of nuclear waste are expected on US 95. Truck shipments of nuclear waste through populated areas lead to a radiation dose to the public even if the transport is incident-free, because no shielding material can entirely eliminate direct gamma and neutron radiation. As a result, residents, vacationers, drivers, pedestrians and workers will get a radiation dose, which depends on the recipient's proximity and exposure time. Depending on the population estimate used, the population dose due to incident-free transportation of all waste shipments that are planned to pass Hawthorne will be as high as 1.55 person-rem. Even though this dose and the resulting population risk are relatively small, it nevertheless increases the risk to develop cancer.

Mineral Public Survey
(PDF file)

FAQ's

[Timelines](#)

[Publications](#)

[Licensing a
Repository](#)

[Skull Valley](#)

[Finding a Home for
Nuclear Waste](#)

[NRC - High-Level
Waste Disposal](#)

[EPA - Yucca
Mountain Standards](#)

[Nuclear Waste
Technical Review
Board](#)

[DOE/Yucca Mountain
\(headquarters\)](#)

[Yucca Mountain
Geophysical Studies](#)

[Nuclear Information
and Resource Center](#)

[Contact Us](#)

[Home](#) | [Site Map](#) | [Disclaimer](#) | [Contact Us](#) | ©2006 Mineral County Nuclear Projects Office